

**Amendment to the Claims:**

The listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A method for gradually deforming an initial realization formed from measurements or observations and defining ~~the a~~ distribution of a set of objects in a zone of a heterogeneous medium ~~such as a geologic structure~~, generated by simulation of an object type stochastic model, the objects being distributed in the zone according to a Poisson point process in a form of figurative points with a point density  $\lambda(x)$  varying according to their position (x) in the zone, ~~characterized in that it comprises comprising :~~

[-] generating a realization of a uniform random vector according to which ~~the a~~ position of each object is defined while respecting density  $\lambda(x)$ ; and

[-] gradually modifying the uniform random vector according to a gradual deformation procedure, so as to obtain gradual migration of each object and consequently gradual change in the distribution of the objects in the zone, until a final realization best adjusted to parameters relative to the structure of the medium, ~~such as hydrodynamic parameters~~, is obtained, which gives a realistic representation of the configuration of the objects in the modelled heterogeneous medium.

2. (Currently Amended) A method as claimed in claim 1, ~~characterized in that~~ wherein migration of the figurative points representing objects in a subdomain of the zone is limited by imposing a zero point density in the complementary part of the subdomain.

3. (Currently Amended) A method as claimed in claim 1, ~~characterized in that one gradually changes from~~ wherein a realization containing a first set of N1 points is gradually changed to a realization containing a second set of N2 points by constructing a chain N(t) of Poisson numbers between the two numbers N1 and N2 using the gradual deformation procedure.

4. (Currently Amended) A method as claimed in claim 1, ~~characterized in that the wherein~~ size, ~~the~~ shape and ~~the~~ orientation of an object are gradually modified during its it's the migration of the object using the gradual deformation procedure.

5. (Currently Amended) A method as claimed in claim 1, ~~characterized in that wherein~~ point density ((x) is gradually adjusted using the gradual deformation procedure.

6. (Currently Amended) A method as claimed in claim 2, ~~characterized in that one gradually changes from~~ wherein a realization containing a first set of N1 points is gradually changed to a realization containing a second set of N2 points by constructing a chain N(t) of Poisson numbers between the two numbers N1 and N2 using the gradual deformation procedure.

7. (Currently Amended) A method as claimed in claim 2, ~~characterized in that the wherein~~ size, ~~the~~ shape and ~~the~~ orientation of an object are gradually modified during its it's the migration of the object using the gradual deformation procedure.

8. (Currently Amended) A method as claimed in claim 3, ~~characterized in that the wherein size, the shape and the orientation of an object are gradually modified during its it's the migration of the object using the gradual deformation procedure.~~

9. (Currently Amended) A method as claimed in claim 2, ~~characterized in that wherein point density ((x) is gradually adjusted using the gradual deformation procedure.~~

10. (Currently Amended) A method as claimed in claim 3, ~~characterized in that wherein point density ((x) is gradually adjusted using the gradual deformation procedure.~~

11. (Currently Amended) A method as claimed in claim 4, ~~characterized in that wherein point density ((x) is gradually adjusted using the gradual deformation procedure.~~

12. (Currently Amended) A method as claimed in claim 6, ~~characterized in that wherein point density ((x) is gradually adjusted using the gradual deformation procedure.~~

13. (Currently Amended) A method as claimed in claim 7, ~~characterized in that wherein point density ((x) is gradually adjusted using the gradual deformation procedure.~~

14. (Currently Amended) A method as claimed in claim 8, ~~characterized in that wherein point density ((x) is gradually adjusted using the gradual deformation procedure~~

15. (New) A method as claimed in claim 1 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

16. (New) A method as claimed in claim 2 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

17. (New) A method as claimed in claim 3 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

18. (New) A method as claimed in claim 4 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

19. (New) A method as claimed in claim 5 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

20. (New) A method as claimed in claim 6 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

21. (New) A method as claimed in claim 7 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

22. (New) A method as claimed in claim 8 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

23. (New) A method as claimed in claim 9 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

24. (New) A method as claimed in claim 10 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

25. (New) A method as claimed in claim 11 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

26. (New) A method as claimed in claim 12 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

27. (New) A method as claimed in claim 13 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.

28. (New) A method as claimed in claim 14 wherein the medium is a geologic structure and the parameters are hydrodynamic parameters.